

## Kentucky Department of Education Abstract

### Gender and Race Subgroup Performance Difference in KIRIS Accountability Cycle 2 and Cycle 3 Results

Kentucky's statewide assessment and accountability program, the Kentucky Instructional Results System (KIRIS), was designed to foster learning for all children in the Commonwealth. A recent KDE Office of Assessment and Accountability study examined key parts of the KIRIS assessment to explore the extent to which there were performance differences by gender and race. Data from all six years of KIRIS testing were included in the analyses (1992-98). The main findings of this study were that small academic performance differences by gender and race exist among Kentucky students. The overall pattern of difference found the following rank ordering of student scores (highest to lowest): Caucasian female, Caucasian male, African-American female and African-American male. The following paragraphs present brief summaries of the results by school level followed a brief examination of the performance differences.

#### Elementary Schools

The overall elementary KIRIS scores indicated continuous improvement across the six-year period in reading, mathematics, science and social studies scores. There was very little difference by gender in the science and mathematics scores; however, there were small differences by gender in the reading and social studies scores. The differences in scores by race were small but consistent in all academic areas across all six years.

#### Middle School

The overall middle-school KIRIS scores for the six-year period indicated a steady state of performance in reading, science, and social studies and a slight increase in mathematics. This pattern was consistent across groups, but there were small differences between group performances. There were differences by both race and gender in the reading and social studies scores; however, the group differences in mathematics and science scores were by race rather than gender. Caucasian females and Caucasian males had very similar science and mathematics scores; these scores were higher than the scores of African-American females and African-American males.

#### High School

The high school KIRIS scores indicated progress in academic achievement across the six-year period in all areas. The pattern of group difference in the high school science and mathematics scores was similar to that of middle-school scores. The difference was by race rather than gender. There were small group differences in the high school reading and social studies scores that followed the overall pattern with the groups rank ordered as Caucasian female, Caucasian male, African-American female, and African-American male.

## Examining Performance Differences

### Comparing patterns of responses with national assessments.

Examination of the available data from the National Assessment of Educational Progress (NAEP) and the ACT revealed a similar pattern of performance differences between males and females and between Caucasian and African-American students. Education Week reported that the race difference decreased from 1970 to 1988 and has been increasing ever since (Olson, 1997). The small differences in KIRIS scores were consistent across the six-year period; indicating neither increases nor decreases in differences.

### Examining the test for bias.

Although there are performance differences evident within the KIRIS data between males and females and between Caucasians and African-Americans, the size of the performance differences and the small amount of variance they explain do not necessarily imply that the KIRIS assessment or the accountability system is biased. The Bias Review Committee reviews the KIRIS assessment extensively during the test construction each year. Items judged by the Bias Review Committee to cause disadvantage to student subgroups are dropped from the test or modified to remove the potential source of bias.

### Differences in performance by race in districts with high concentrations of minorities.

An additional section of the study compared the gap in Caucasian and African-American students' scores in school districts with higher concentrations of minorities versus districts with lower concentrations of minorities. Results of this preliminary study found that school districts with more than 3% minority enrollment had a larger discrepancy between Caucasian and African-American scores.

### Qualitative exploration of racial differences in performance.

An exploratory study examined six Kentucky schools looking for common factors that could explain the small racial performance difference at each school over the Accountability Cycles. Semi-structured interviews were conducted at each sample school. An analysis of the data from all six schools found the faculties of every school commonly reported only one variable that they believed affected scores; socioeconomic status. There was a widespread perception among staff and faculty in the schools under study that when students' social class was similar the performance differences between Caucasian and African-American students either became smaller or disappeared. This finding from the qualitative study was followed-up quantitative analysis of the data; using a multiple linear regression to explore the effects of gender, race, and socioeconomic factors on KIRIS scores. This analysis found that the small differences by race and gender were still apparent after socioeconomic differences were accounted for.